

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 199239

Roll No.

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**B.Tech.**

**(SEM. II) THEORY EXAMINATION 2013-14**

**COMPUTER PROGRAMMING**

*Time : 3 Hours*

*Total Marks : 100*

**Note :-** Attempt questions from each Section as per instructions.

**SECTION-A**

1 Attempt **all** parts of this section. Each part carries 2 marks.

**(2×10=20)**

- (a) Why 'C' is called structured programming language ?
- (b) Explain the output of following :  

```
#define SQUARE (x) x * x  
void main ( ) {  
    int i;  
    i = 81/SQUARE (9);  
    printf ("%d", i); }
```
- (c) What is ASCII Code ? Write ASCII Code in 8 bit for word "Hi".
- (d) Differentiate between conditional operator and switch.
- (e) What is void pointer ? How is it different from other pointers ?
- (f) What is function prototype ? Why is it required ?
- (g) Write any four features of LINUX operating system.

- (h) Find the output of the following code :

```
void main ( ) {  
    switch (0) {  
        case 0 : printf ("0+3");  
        case 0+1 : printf ("0+5");  
        default : printf ("Wrong Input");  
    }  
}
```

- (i) Define linker and explain its role in 'C' programming.  
(j) Find the value of Y (assume Y is integer data type)  
 $Y = 4 * 2 / 4 - 6 / 2 + 3 \% 2 * 6 / 2 + 2 > 2 \& \& 4 != 2.$

### SECTION-B

2. Attempt any three parts of this question. Each part carries 10 marks. (10×3=30)

- (a) Draw a neat diagram of digital computer and explain the role of each functional unit.  
(b) Convert the following :  
(i)  $(B5C)_{16} - (92A)_{16} = (?)_{10}$   
(ii)  $(10101011101.011)_2 = (?)_{16}$   
(iii)  $(916.125)_{10} = (?)_4$   
(iv)  $(16)_8 + (45)_8 = (?)_{16}$   
(v)  $(123)_5 = (?)_3$   
(c) Differentiate between pseudo code and algorithm. Write the characteristics of an algorithm. Draw a flow chart for printing Fibonacci series upto a term given by user.  
(d) What is storage class in 'C' ? Explain different storage classes supported in C with suitable example.  
(e) Write a program in 'C' to create a database of fifty students to store personal details such as Roll No., Name and Marks. Print all the details of student whose name is entered by user.

### SECTION-C

**Note :—** Attempt all questions of this Section. Each question carries 10 marks. (10×5=50)

3. Attempt any two parts :

- (a) Define number system. Why binary number system is used in computer ?  
(b) What is operating system ? Explain main four functions of operating system.  
(c) Define the following terms and give one example of each :  
(i) Application Software  
(ii) Symbolic Language  
(iii) Data Error  
(iv) Logical Error.

4. Attempt any two parts :

- (a) Explain different types of type conversion in 'C' with suitable example.  
(b) Write a program in 'C' using conditional operator to find the largest among five numbers given by the user at run time.  
(c) What is bitwise operator ? Explain all bitwise operators in 'C' with suitable example.

5. Attempt any two parts :

- (a) Write a program in 'C' to print the Pascal Triangle upto the rows given by user.  
(b) Differentiate between break and continue with suitable example.  
(c) Write a program in 'C' to convert a number in decimal system which is entered by the user to a number in hexadecimal system.

**6. Attempt any two parts :**

- (a) What is alternative to recursion ? Write a program in C to calculate the area and perimeter of a circle for a given radius using user defined single function which returns area and perimeter to the main function.
- (b) Write a program in 'C' to read data from keyboard, write it to a file named PASCO, again read the same data from file PASCO and display number of characters, number of vowels and number of lines contained in it on the screen.
- (c) Write a program in 'C' to create a list of ten elements using dynamic memory allocation and display the sorted list.

**7. Attempt any two parts :**

- (a) Why C preprocessor is called preprocessor ? Differentiate between statements  
# include < facto . h > and  
# include "facto . h"  
Explain nested macros with suitable example.
- (b) Write a program in 'C' to determine whether a string given by the user is palinrome or not without using strrev() function.
- (c) Explain the architecture of LINUX operating system. Write any two file related and two directory related commands in LINUX with syntax.